

ABSTRACT

Improved apparatus is disclosed for carrying out axially illuminated laser induced fluorescence whole-column imaging detection in the capillary isoelectric focusing of proteins. The separation capillary was made of low refractive index Teflon conditioned with methylcellulose to reduce electroosmotic flow and a small amount of high refractive index organic solvent (glycerol) was added to the sample mixture. It was found that an axially directed laser excitation beam was propagated essentially with total internal reflection, so that minimum interference arose from stray light or from scattering light originating from the wall of the capillary. With the naturally fluorescent protein R-phycoerythrin, a concentration detection limit LOD 10^{-11} M or mass LOD 10^{-17} Mo was obtained.